CONTENTS OF VOLUME 31

ALLEN, O. N.—See Gregory, K. F.

ANDREAE, S. R.—See Andreae, W. A.

ANDREAE, W. A. and ANDREAE, S. R.—Studies on indoleacetic acid metabolism. I. The effect of methyl umbelliferone, maleic hydrazide, and 2, 4-D on indoleacetic acid oxidation, 426.

ATKINSON, R. G.—Survival and pathogenicity of *Alternaria raphani* after five years in dried soil cultures, 542.

BANNAN, M. W.—Further observations on the reduction of fusiform cambial cells in *Thuja occidentalis* L., 63.

BARR, M. E.—Pyrenomycetes of British Columbia, 810.

BASHAM, J. T., MOOK, P. V., and DAVIDSON, A. G.—New information concerning balsam fir decays in Eastern North America, 334.

BELL, H. P.—The growth cycle of the blueberry and some factors of the environment, 1.

BISHOP, C. J.—See MacDonald, R. E.

BLACKWOOD, A. C.—Production of cytases active on barley gum by bacteria of the genus *Bacillus*, 28.

BRADLEY, R. H. E. and GANONG, R. Y.—Note on the time potato leaf roll virus takes to pass from aphids on the leaves into the developing tubers, 143.

BREWER, D. and MACNEILL, B. H. Preliminary studies in *Ascochyta pisi* Lib., 739.

BRODIE, H. J. and GREGORY, P. H.—The action of wind in the dispersal of spores from cup-shaped plant structures, 402.

BURTON, M. O.—See Lochhead, A. G.

BURTON, M. O. and LOCHHEAD, A. G.—Nutritional requirements of *Arthrobacter terregens*, 145.

CALDER, J. A.—See Savile, D. B. O.

CHINN, S. H. F.—A slide technique for the study of fungi and actinomycetes in soil with special reference to *Helminthosporium sativum*, 718.

CORMACK, R. G. H. and GORHAM, A. L.—Effects of exposure to direct sunlight upon the development of leaf structure of two deciduous shrub species, 537.

DAVIDSON, A. G.—See Basham, J. T.

DENYER, W. B. G.—*Cephalosporium* canker of western hemlock, 361.

DUFF, G. H. and NOLAN, N. J.—Growth and morphogenesis in the Canadian forest species. I. The controls of cambial and apical activity in *Pinus resinosa* Ait., 471.

EGGERTSON, E.—An estimate of the number of alleles at the loci for heterothallism in a local concentration of *Polyporus obtusus* Berk., 750.

FORWARD, D. F.—The response of potato tubers to a period of anaerobiosis. I. Drifts in carbon dioxide production, 33.

FRASER, D. A. and MAWSON, C. A.—Movement of radioactive isotopes in yellow birch and white pine as detected with a portable scintillation counter, 324.

GANONG, R. Y.—See Bradley, R. H. E.

GARAY, L. A.—A new natural hybrid *Cypripedium* from Ontario, 660.

GORHAM, A. L.—See Cormack, R. G. H.

GREENIDGE, K. N. H.—Further studies of birch dieback in Nova Scotia, 548.

GREGORY, K. F. and ALLEN, O. N.—Physiological variations and host plant specificities of rhizobia isolated from *Caragana arborescens* L., 730.

GREGORY, P. H.—See Brodie, H. J.

GROVES, J. W.—See Skolko, A. J.

HAWN, E. J. and VANTERPOOL, T. C.—Preliminary studies on the sexual stage of *Rhizoctonia solani* Kühn, 699.

HUGHES, S. J.—Some foliicolous hyphomycetes, 560. Conidiophores, conidia, and classification, 577.

KAPICA, L.—See Pady, S. M.

KATZNELSON, H.—See Sutton, M. D.

KATZNELSON, H. and SUTTON, M. D.—Bacteriophage in relation to *Xanthomonas translucens*, 725.

KELLY, C. D.—See Pady, S. M.

KELLY, C. D. and PADY, S. M.—Microbiological studies of air over some nonartic regions of Canada, 90.

KEMP, W. G.—Studies on the physiology of *Elsinoe veneta*, 411.

LACHANCE, RENÉ-O. and PERRAULT, C.—Antagonisme des microorganismes du sol envers *Fusarium oxysporum* f. *lini*, agent de la flétrissure du lin, 515.

LANDERKIN, G. B.—A contrast technique for plaque counting, 142.

LEWIN, R. A. and MEINHART, J. O.—Studies on the flagella of algae. III. Electron micrographs of *Chlamydomonas moewussi*, 711.

LINDSAY, D. R.—See Moore, R. J.

LOCHHEAD, A. G.—See Burton, M. O.; Stevenson, I. L.

LOCHHEAD, A. G. and BURTON, M. O.—An essential bacterial growth factor produced by microbial synthesis, 7.

LUDWIG, R. A.—See Sampson, R. E.

MACDONALD, R. E. and BISHOP, C. J.—A further survey of plants for antibacterial substances. 123.

MCGINNIS, R. C.—Cytological studies of chromosomes of rust fungi. I. The mitotic chromosomes of *Puccinia graminis*, 522.

MCKEEN, W. E.—Preliminary studies of root and basal stalk rot of maturing corn in Ontario, 132.

MACNEILL, B. H.—See Brewer, D.

MAWSON, C. A.—See Fraser, D. A.

MEINHART, J. O.—See Lewin, R. A.

MOOK, P. V.—See Basham, J. T.

MOORE, R. J. and LINDSAY, D. R.—Fertility and polyploidy of *Euphorbia cyparissias* in Canada, 152.

MOSS, E. H.—Forest communities in Northwestern Alberta, 212. Marsh and bog vegetation in Northwestern Alberta, 448.

NEISH, A. C.—Studies on the anaerobic dissimilation of glucose by *Bacillus subtilis* (Ford's type), 265.

NEWTON, J. D.—See Spencer, J. F. T.

NEWTON, WM.—Antagonism by species of *Alternaria* and the isolation of a crystalline substance from the filtrate of cultures of *A. radicina*, 423.

NOBLES, M. K.—Studies in wood-inhabiting hymenomycetes. I. *Odontia bicolor*, 745.

NOLAN, N. J.—See Duff, G. H.

PADY, S. M.—See Kelly, C. D.

PADY, S. M. and KAPICA, L.—Air-borne fungi in the Arctic and other parts of Canada, 309.

PADY, S. M. and KELLY, C. D.—Studies on microorganisms in Arctic air during 1949 and 1950, 107.

PERRAULT, C.—See Lachance, René-O.

PERSON, C.—Observations on interphase and prophase nuclei of root tips of Einkorn wheat and onion, 527.

PODMORE, D. G.—See Thomas, G. P.

POTZGER, J. E.—Nineteen bogs from Southern Quebec, 383.

ROBERTS, D. W. A.—Physiological and biochemical studies in plant metabolism. VIII. The distribution of invertase in the first leaf of Khapli wheat, 367.

ROUATT, J. W.—See Stevenson, I. L.

SAMPSON, R. E. and LUDWIG, R. A.—The effectiveness of certain fungicides against *Botrytis tulipae* (Lib.) Lind, 531.

SAVILE, D. B. O.—Notes on boreal Ustilaginales, 663.

SAVILE, D. B. O. and CALDER, J. A.—Phylogeny of *Carex* in the light of parasitism by the smut fungi, 164.

SKOLKO, A. J. and GROVES, J. W.—Notes on seed-borne fungi. VII. *Chaetomium*, 779.

SPENCER, J. F. T. and NEWTON, J. D.—Factors influencing the growth and survival of rhizobia in humus and soil cultures. II, 253.

STEVENSON, I. L. and LOCHHEAD, A. G.—The use of a percolation technique in studying antibiotic production in soil, 23.

STEVENSON, I. L. and ROUATT, J. W.—Qualitative studies of soil microorganisms. XI. Further observations on the nutritional classification of bacteria, 438.

STOVER, R. H.—The effect of soil moisture on *Fusarium* species, 693.

SUTTON, M. D.—See KATZNELSON, H.

SUTTON, M. D. and KATZNELSON, H.—Isolation of bacteriophages for the detection and identification of some seed-borne pathogenic bacteria, 201.

TAMBOLINE, F. R.—Nitrogen and vitamin requirements of *Pseudomonas hydrophila*, 206.

THOMAS, G. P. and PODMORE, D. G.—Studies in forest pathology. XI. Decay in black cottonwood in the middle Fraser region, British Columbia, 675.

VANTERPOOL, T. C.—See Hawn, E. F.

WARD, G. M.—The isolation and identification of sucrose from the seedling wheat leaf, 75. Physiological and biochemical studies in plant metabolism. VII. The invertase of the seedling wheat leaf, 81.

WENSLEY, R. N.—Microbiological studies of the action of some selected soil fumigants, 277.

WERESUB, L. K.—Studies of Canadian Thelephoraceae. X. Some species of *Peniophora*, section *Tubuliferae*, 760.

WHITE, L. T. Studies in forest pathology. X. Decay of white pine in the Timagami Lake and Ottawa Valley areas, 175.

CORRECTION

Page 206. In Footnote 1 "Issued as Paper No. 000....." should read "Issued as paper No. 146.....".